The following comments represent the position of Optibrand Ltd. LLC, Ft Collins, Colorado on USDA Docket 05-015-1 (APHIS-2005-0044) - Request for Comments, National Animal Identification System; Notice of Availability of a Draft Strategic Plan and Draft Program Standards.

Founded in 1998, Optibrand Ltd., LLC is based in Fort Collins, Colorado and is the originator of the world's only retinal scanning system for livestock identification. Optibrand fully supports the establishment of a National Animal Identification. However, we remain seriously concerned about several of the precepts outlined in the Draft Strategic Plan as well as a number of technical issues in the Draft Standards. Our comments address several of the questions posed by USDA as well as other issues such as tag retention and readability, the implied mandate to adopt a single technology, audit systems and identification of imported livestock.

Retinal Livestock Identification Technology

The pattern of blood vessels in the back of the eye is called the retinal vascular pattern (RVP) This biometric identifier pattern is more unique than a human fingerprint, is present from birth until hours after death and does not change over the life of the animal. Optibrand has developed a system to obtain a digital image of the RVP and store this electronically in a database. This pattern then can be searched and matched to determine an animal's identification. By linking the Global Positioning System (GPS) to the retinal image, the time, date and location of the animal can be captured when the eye is scanned. This information is combined with the retinal image in a secure, encrypted, electronic form, proving beyond doubt that this animal was at this place at this time. The internal GPS system provides time, date and location information and is securely linked to the retinal image. This makes it possible to precisely and rapidly track individual animal movement and the movement of all other animals that are associated with the original animal of interest

This is a powerful technology for establishing a secure, tamper-resistant livestock identifier as demonstrated in several studies. One evaluation of this technology, by the Government of Northern Ireland, showed that it can both verify an animal ID and detect fraudulent ID switching with 100% accuracy (DARD, personal communication). A study by Colorado State University and the State of Colorado used retinal ID used to confirm animal ID numbers on animals in question. The study also showed that when RFID tags are lost, even at levels of 30% or more, retinal patterns can be used to correctly re-established the original RFID tag number can be for all animals that lost tags.

The Draft Strategic Plan calls for making the entire system mandatory by January 2009. Is a mandatory identification program necessary to achieve a successful animal disease surveillance, monitoring, and response system to support Federal animal health programs? We believe that the NAIS should be a mandatory program in order to achieve the critical mass necessary to have a truly effective animal tracking system. Given the potential cost impact of this system on producers, we do not believe that enough producers will participate voluntarily for the system to be effective. By way of example, checkoff programs did not generate widespread participation while voluntarily so were forced to pass legislation mandating checkoff programs to achieve the necessary level of participation.

In the current Draft Strategic Plan, the NAIS would require that producers be responsible for having their animals identified before the animals move to a premises where they are to be commingled with other animals, such as a sale barn. At what point and how should compliance be ensured? Producers should identify their animals before moving them to another facility; however, in the end, the responsibility for identification should rest with the receiving entity. Not only will this simplify implementation, it will provide sale barns, fairs, feedlots, packing plants, etc with an additional revenue stream to help offset some of their incurred ID costs. Entities that do not wish to identify livestock when unloaded at their facility can easily specify such to suppliers and turn away any non-identified animals. Market forces will generate compliance.

In regard to cattle, individual identification would be achieved with an AIN tag that would be attached to the animal's left ear. It is acknowledged that some producers do not have the facilities to tag their animals; thus, the Draft Program Standards document contains an option for tagging sites, which are authorized premises where owners or persons responsible for cattle could have the cattle sent to have AIN tags applied. Do you think this is a viable option, i.e., can markets or other locations successfully provide this service to producers who are unable to tag their cattle at their farms? Certainly markets, veterinarians or other Service providers can provide ID services to producers who wish to contract out this work. This could either take place on the farm or at a specific site like an auction.

More importantly however, this question underscores one of the most serious problems with the draft standards. The National Animal Identification Plan should be technology neutral. Livestock production is not carried out by a single industry and production method. Beef production, for instance, occurs by a complex set of amalgamated industries segmented by stage of production, geographic and climatic conditions, source of raw material supply, production methods such as level of management intensity, and other factors. These variations clearly indicate that a "one size fits all" approach to this issue is an oversimplification of the requirements.

Another important reason that USDA should not dictate a single technology for all cattle identification is that doing so stifles development of new technologies with improved capability. Innovation is the engine that drives our economy. The government must create an environment that promotes innovation. Allowing multiple technologies to

participate in this market will allow cattle producers to select the best solution for their own needs.

USDA should not dictate a single technology because it will not be suitable for all product markets, especially our foreign markets. For example, it is unknown if a NAIS system based solely on radio frequency ear tags for beef cattle will be the best solution for opening up the Japanese export market. In order to re-gain the Japanese consumers' trust, we must demonstrate a secure method of accounting for the raw material supply of export products.

Countries around the world are currently struggling with fraud or quality assurance on ear tag based systems. In the last six months governments in Britain, Northern Ireland and Japan have experienced multiple occurrences of tag fraud switching in cattle. We must be sure that we allow for identification methodologies that are auditable and impervious to fraud. Otherwise, we will not be able to hold on to or to recapture these international markets.

The technology now exists to identify cattle without a tag using the retinal vascular pattern Because many producers are embracing biometric livestock identification methods, its critical that USDA maintain its neutral approach on ID technology and make room for biometric identification in the NAIS. Despite myths to the contrary, this is easily accomplished using the following standards: a) the animal must be a part of a coordinated production system. A coordinated production system would be defined as one in which all buyers and sellers in a supply chain agree to purchase and use equipment for collecting retinal vascular patterns as their ID method. b) Animals identified with retinal patterns must be electronically assigned a unique Animal Identification Number linked to the retinal image. c) The bovine or ovine must have a brand, tag or other marking that clearly indicates that the animal has been retinal imaged. d) If an animal is diverted from such a coordinated supply chain, it must be identified with an Official Ear Tag.

As provided for in USDA's interim rule published on November 8, 2004 (Docket No. 04–052–1; Livestock Identification; Use of Alternative Numbering Systems), the USDA-APHIS Administrator has the authority to approve bovine and ovine retinal vascular pattern images as official ID devices. In a letter dated March 15, USDA-APHIS rejected an Optibrand request for the retinal pattern to be approved as an official ID method. Their reasoning and our arguments refuting them are as follows.

- APHIS stated that they believe retinal images can be scanned for only 2 hours post-mortem. Optibrand's proof-of-concept data indicates that high quality retinal patterns can be successfully captured from properly chilled eyes several days post-mortem. In another example, Swift & Co daily acquires retinal images of thousands of animals after they have undergone stunning and exsanguination.
- The issue of ear tag loss or fraud is a much greater risk than the requirement to identify animals days after death. Very few epidemiological investigations begin with a dead animal unless the disease is detected in a packing plant where it is easy to collect retinal images. Most investigations begin with a live animal showing clinical

signs of a disease. Given the potential for tag loss there is a greater likelihood of an animal being unidentifiable due to lost tags than due to a dead animal with an unreadable retinal image.

There are numerous examples and citations regarding levels of ear tag loss and fraud. USDA has not addressed these issues except by specifying totally unrealistic standards for loss and readability.

- In a series of telephone interviews with 75 western cattle producers and feedlot owners, 49% reported tag loss to be a problem on their operation. The average tag loss reported by this group was 4.25% and ranged from 1% to 10% percent.
- A recent study conducted by Colorado State University and the State of Colorado found 30.4 % RFID tag loss in three months on an Eastern Colorado range cattle operation.
- North Dakota State University Extension Service published a paper May 2003 describing the difficulties surrounding tag identification. They sited problems with limited ear space for necessary tags, and 12% tag loss as primary problems in identifying their herd.
- U.S. Rep. Tom Osborne (R-Neb) was quoted (by North Texas e-News in March 2004) stating his concern about the reliability of ear tag devices.
- USDA-APHIS reported that in 2003, there were 39 cases of bovine TB discovered at the slaughterhouse level. Of these 39 cases, 9 animals retained only their feedlot tags and 9 had no animal identification or the animal ID was not reported.
- "Even though RFID technology has been around for many years, challenges remain in terms of tag retention, reader technologies, and integration within the livestock markets. (Fourdraine, National Animal ID Costs and Regulations, Wisconsin Livestock Identification Consortium)
- IDEA: A Large-scale Project on Electronic Identification of Livestock published in the World Organization for Animal Health Scientific and Technical Review, found the recovery rate of electronic ear tags was 92.5 percent. (Stewart, Gelbvieh World Magazine, 2/2005)

APHIS has said that animals must have some type of visual marking of the AIN in order to be readily identifiable to epidemiologists investigating an incident. We recognize that this is the optimum situation; however, it certainly is not a requirement and is not sufficient reason to reject retinal images outright. If an Official Ear Tag is lost, which can easily happen at levels approaching or exceeding 10%, animal health officials would also be unable to identify the animal by sight. Why are officials approving ear tags when they present a higher risk of lost identity than retinal images? If is strictly because tag based system promote effeciecny, then USDA is creating an efficient system that will be subject to error, fraud and ultimately consumer mistrust. Furthermore, if retinal scanning is used as an official ID device, it would only be within a closed system where all entities (cow/calf, stocker, feedlot and packing plant) had the proper equipment on location. In these situations, the number of unidentifiable animals would approach zero.

USDA-APHIS has stated that they see retinal scanning best used as a supplemental method of identification. However, designating the retinal vascular pattern as an Official ID Method will give it legal status when it is used as a supplementary method to

underpin tag based systems that use Official Ear Tags. While USDA's interim rule makes it illegal to remove an Official Ear Tag, there will be circumstances when tags are accidentally or purposefully removed but a retinal image and corresponding AIN are available. An official designation would allow USDA to take legal actions in such a situation.

Technology mandates
USDA has stated that there are five principles that guide the development of NAIS: Uniformity, flexibility, inclusiveness, cooperation and security/reliability/confidentiality. Under flexibility, USDA states: *The NAIS must allow producers to use NAIS in coordination with production management systems, marketing incentives, etc., allowing for the transition to a "one number – one animal" system for disease control programs and other industry administered programs.*
While animals must be identified before moving from their current premises, producers can decide whether to identify their stock at birth or through other management practices. The integration of animal identification technology standards (electronic identification, retinal scan, DNA, etc.) will be determined by industry to ensure the most practical options are implemented, and that new ones can easily be incorporated into the NAIS.

Optibrand agrees with this flexible approach and believes that the marketplace should determine what applications are practical. However, USDA MUST take the lead in establishing methods for incorporating new technologies into NAIS. Otherwise, companies that have valid, commercials technologies are faced with a chicken and egg scenario. A technology cannot be determined by the industry through testing in the marketplace because USDA NAIS standards do not allow the marketplace to test the technology. For example, Optibrand's retinal technology is practical, secure, and applicable to certain commercial operations that care less about speed than with security. As currently written, USDA's de-facto standard for RFID tags on cattle will prevent retinal technology from being tested and judged by the market place. If USDA established minimum standards for data collection and reporting, technologies that meet these standards could launch them and allows the market to determine their worth.

Retinal Imaging to Secure Borders for Imported Livestock

The NAIS specifies that imported livestock will be identified with an official ID Device (IE a tag). It is well known that the current metal tag that imported Mexican cattle carry is frequently removed soon after arriving in the U.S. If RFID tags are used, tag loss will also be an issue. We believe that this poses a substantial risk for the introduction of Foreign Animal Disease. Retinal imaging these animals at the border crossing will provide a mechanism to reliably regain identity when these tags are removed and thus guarantee the traceability of imported livestock. We believe that this can be done at a very low cost and implemented immediately. The NAIS should mandate retinal imaging to underpin the tags on imported livestock.

Auditing and determining System Performance

Annual test exercises – APHIS would sponsor test exercises to check on the progress of tracking animal movements. These would include most species, States, and Tribes each year. Retinal imaging with secure location information (i.e. GPS data) is a highly reliable method for evaluating the effectiveness of identity retention. Auditing performance is going to be a critical component of the NAIS. We request that the NAIS include language to support retinal imaging, with secure location information, as a valid tool for the audit and verification functions of the USAIP.